



What is Claimed is:

1. Light-storage self-luminescent glass,
comprising from 0.01% to 40% by weight of a light-
storage self-luminescent material activated by multiple
ions and from 99.99% to 60% by weight of a matrix
5 glass; wherein the light-storage self-luminescent
material has a particle size from 10 μm to 20 mm, and
the matrix glass is low melting point glass or common
silicate glass, and other conventional borate glass,
phosphate glass, halide glass, sulfide glass and
10 aluminate glass.

2. Light-storage self-luminescent glass
according to claim 1, wherein the chemical formula of
the light-storage self-luminescent material activated
by multiple ions is:

5 $\alpha\text{MO} \cdot \beta\text{M}'\text{O} \cdot \gamma\text{SiO}_2 \cdot \delta\text{R:Eu}_x\text{Ln}_y$

wherein M is one or more selected from
the group consisting of Sr, Ca, Ba and Zn;

M' is one or more selected from the
group consisting of Mg, Cd and Be;

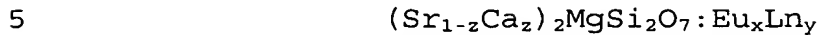
10 R is B_2O_3 , P_2O_5 or mixture thereof;

Ln is one or more selected from the
group consisting of Nd, Dy, Ho, Tm, La, Pr, Tb, Ce, Er,
Mn, Bi, Sn and Sb; and

α , β , γ , δ , x and y are molar
15 coefficients meeting following requirement: $0.6 \leq \alpha \leq$
6; $0 \leq \beta \leq 5$; $1 \leq \gamma \leq 9$; $0 \leq \delta \leq 0.7$; $0.00001 \leq x \leq 0.2$;
 $0 \leq y \leq 0.3$.

3. Light-storage self-luminescent glass
according to claim 2, wherein the main chemical formula

of the light-storage self-luminescent material
activated by multiple ions is:



wherein Ln is one or more selected from
the group consisting of La, Ce, Dy, Tm, Ho, Nd, Er, Sb
and Bi;

z is a coefficient: $0 \leq z \leq 1$; and

10 x and y are molar coefficients: $0.0001 \leq x \leq 0.2$; $0.0001 \leq y \leq 3.0$.

4. Light-storage self-luminescent glass
according to claim 1, wherein the chemical formula of
the light-storage self-luminescent material activated
by multiple ions is:



wherein Ln is one or more selected from
the group consisting of Er, Dy, La, Tm and Y;

z is a coefficient: $0 \leq z \leq 1$; and

10 x and y are molar coefficients meeting
following requirement: $0.00001 \leq x \leq 0.2$; $0.00001 \leq y \leq 0.15$.

5. Light-storage self-luminescent glass
according to claim 1, wherein the chemical formula of
the light-storage self-luminescent material activated
by multiple ions is:



wherein R is one or more selected from
the group consisting of Y, La and Gd;

Ln is one or more selected from the
group consisting of Er, Cr, Bi, Dy, Tm, Ti, Mg, Sr, Ca,
10 Ba and Mn; and

x and y are molar coefficients meeting following requirement: $0.00001 \leq x \leq 0.2$; $0.00001 \leq y \leq 0.6$.

6. Light-storage self-luminescent glass according to claim 1, wherein the chemical formula of the light-storage self-luminescent material activated by multiple ions is:

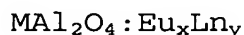


wherein M is one or more selected from the group consisting of Mg, Ca, Sr and Zn;

Ln is one or more selected from the group consisting of Nd, Dy, Ho, Tm, La, Ce, Er, Pr and
10 Bi; and

α , β , γ , x and y are molar coefficients meeting following requirement: $0.5 \leq \alpha \leq 6$; $0.5 \leq \beta \leq 9$; $0 \leq \gamma \leq 0.3$; $0.00001 \leq x \leq 0.15$; $0.00001 \leq y \leq 0.2$.

7. Light-storage self-luminescent glass according to claim 6, the chemical formula of the light-storage self-luminescent material is:



5 wherein Ln is one or more selected from the group consisting of La, Ce, Dy, Ho, Nd and Er;

M is one or more selected from the group consisting of Sr, Ca, Mg and Zn; and

x and y are molar coefficients: $0.0001 \leq x \leq 0.15$; $0.0001 \leq y \leq 0.2$.
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8. Light-storage self-luminescent glass according to claim 6, wherein the chemical formula of the light-storage self-luminescent material activated by multiple ions is:



wherein Ln is one or more selected from the group consisting of Pr, Ce, Dy, Ho, Nd and Er;

M is one or more selected from the group consisting of Sr, Ca, Mg and Zn; and

10 x and y are molar coefficients: $0.0001 \leq x \leq 0.15$; $0.0001 \leq y \leq 0.2$.

9. Light-storage self-luminescent glass according claim 1, wherein the low melting point glass consists of following components (by weight):

SiO ₂ : 10-45%	MgO: 0-8%
Al ₂ O ₃ : 1-5%	CaO: 2-10%
B ₂ O ₃ : 0-50%	SrO: 1-10%
Li ₂ O: 0-6%	BaO: 0-7%
Na ₂ O: 5-20%	ZnO: 0-10%
K ₂ O: 0-20%	ZrO ₂ : 0-1%
TiO ₂ : 0-20%.	

5 10. Light-storage self-luminescent glass according claim 1, wherein the conventional silicate glass consists of following components (by weight):

SiO ₂ : 30-81%	CaO: 0.5-9%
Al ₂ O ₃ : 0-23%	MgO: 1-8%
B ₂ O ₃ : 0-15%	SrO: 1-10%
Li ₂ O: 0-8%	BaO: 0-16%
Na ₂ O: 0.6-18%	ZnO: 0.6-55%
K ₂ O: 0.4-16%	PbO: 0-33%

As₂O₃: 0-0.5%.

5 11. A process for producing the light-storage self-luminescent glass according to claim 1, comprising formulating, mixing, melting and forming to obtain the light-storage self-luminescent glass.

 12. A process for producing the light-storage self-luminescent glass according to claim 11, wherein the light-storage self-luminescent material is doped into the melted matrix glass to produce a mixture
5 and the mixture is formed at 900-1300°C during the forming process.

 13. A process for producing the light-storage self-luminescent glass according to claim 11, wherein a glass which has been formed and cooled is reheated and melted by a glass blower, and doped with the
5 light-storage self-luminescent material before secondary forming.

 14. A process for producing the light-storage self-luminescent glass according to claim 11, wherein the matrix glass is melted, homogenized and clarified to obtain a glass metal, the resultant glass
5 metal is doped with 1-45% of a light-storage self-luminescent material to produce a mixture, and the mixture is mixed well and then secondarily clarified before forming.

 15. A process for producing the light-storage self-luminescent glass according to claim 11, wherein the low melting point glass is melted, cooled down and crushed to obtain glass powder; the glass
5 powder is thoroughly mixed with a light-storage self-

luminescent material to obtain a mixture; and then the resultant mixture is heat treated at the temperature of 700-1100°C to obtain the light-storage self-luminescent glass.